

**Amendments to the Claims:**

This listing of claims will replace all prior versions and listings of claims in the application:

**Listing of Claims:**

**Claim 1 (Currently Amended):** A ~~cell delivery composition~~ for targeting a progenitor cell to a target tissue comprising:

a progenitor cell; and

a targeting moiety that binds to a target tissue,

wherein said targeting moiety selectively directs the progenitor cell to the target tissue, wherein said progenitor cell is linked to said targeting moiety, wherein said targeting moiety is modified with a lipophilic moiety or said progenitor cell is pre-coated with a linker, and wherein said linked targeting moiety enhances adherence of the progenitor cell to the target tissue when administered to a target tissue injury site.

**Claim 2 (Previously Presented):** The composition of claim 1, wherein progenitor cell is selected from the group consisting of a totipotent stem cell, pluripotent stem cell, multipotent stem cell, mesenchymal stem cell, neuronal stem cell, hematopoietic stem cell, pancreatic stem cell, cardiac stem cell, embryonic stem cell, embryonic germ cell, neural crest stem cell, kidney stem cell, hepatic stem cell, lung stem cell, hemangioblast cell, and endothelial progenitor cell.

**Claim 3 (Withdrawn):** The composition of claim 1, wherein said progenitor cell is derived from a de-differentiated chondrogenic cell, myogenic cell, osteogenic cell, tendogenic cell, ligamentogenic cell, adipogenic cell, and dermatogenic cell.

**Claim 4 (Previously Presented):** The composition of claim 1, wherein said progenitor cell is pre-coated with a linker selected from the group consisting of protein G and protein A.

**Claim 5 (Cancelled)**

**Claim 6 (Previously Presented):** The composition of claim 4, wherein said linker is modified with a lipophilic moiety selected from a palmitoyl moiety, myristoyl moiety, margaroyl moiety, stearoyl moiety, arachidoyl moiety, acetyl moiety, butyryl moiety, hexanoyl moiety, octanoyl moiety, decanoyl moiety, lauroyl moiety, palmitoleoyl moiety, behenoyl moiety, and lignoceroyl moiety.

**Claim 7 (Cancelled)**

**Claim 8 (Original):** The composition of claim 1, wherein said progenitor cell is directly linked to said targeting moiety.

**Claim 9 (Previously Presented):** The composition of claim 8, wherein said targeting moiety is modified with a lipophilic moiety selected from a palmitoyl moiety,

myristoyl moiety, margaroyl moiety, stearoyl moiety, arachidoyl moiety, acetyl moiety, butyryl moiety, hexanoyl moiety, octanoyl moiety, decanoyl moiety, lauroyl moiety, palmitoleoyl moiety, behenoyl moiety, and lignoceroyl moiety.

**Claim 10 (Cancelled)**

**Claim 11 (Previously Presented):** The composition of claim 1, wherein said progenitor cell expresses a cell surface marker or an extracellular matrix molecule selected from the group consisting of CD4, CD8, CD10, CD30, CD33, CD34, CD38, CD45, CD133, CD146, fetal liver kinase-1 (Flk1), C-kit, Lin, Mac-1, Sca-1, Stro-1, Thy-1, Collagen types II or IV, O1, O4, N-CAM, p75, and SSEA.

**Claim 12 (Cancelled)**

**Claim 13 (Original):** The composition of claim 1, wherein said targeting moiety comprises a component of a specific binding pair.

**Claim 14 (Original):** The composition of claim 1, wherein said targeting moiety interacts with an epitope intrinsic to the target tissue.

**Claim 15 (Previously Presented):** The composition of claim 14, wherein said epitope is a protein or carbohydrate epitope of the target tissue.

**Claim 16 (Withdrawn):** The composition of claim 15, wherein said carbohydrate epitope is within a complex carbohydrate.

**Claim 17 (Withdrawn):** The composition of claim 16, wherein said complex carbohydrate binds to a lectin.

**Claim 18 (Withdrawn):** The composition of claim 16, wherein said complex carbohydrate is a proteoglycan selected from the group consisting of chondroitin sulfate, dermatan sulfate, heparin, heparan sulfate, hyaluronate, and keratan sulfate.

**Claim 19 (Cancelled)**

**Claim 20 (Withdrawn):** The composition of claim 1, wherein said targeting moiety comprises a homing peptide.

**Claim 21 (Withdrawn):** The composition of claim 20, wherein said homing peptide comprises a sequence selected from PWERSL, FMLRDR, and SGLRQR, and targets to bone marrow tissues.

**Claim 22 (Withdrawn):** The composition of claim 20, wherein said homing peptide comprises a sequence of ASSLNIA, and targets to muscle tissues.

**Claim 23 (Withdrawn):** The composition of claim 20, wherein said homing peptide comprises a sequence of YSGKWGW, and targets to the intestine.

**Claim 24 (Withdrawn):** The composition of claim 20, wherein said homing peptide comprises a sequence selected from CGFELETC and CGFECVRQCPCRC, and targets to lung tissues.

**Claim 25 (Withdrawn):** The composition of claim 20, wherein said homing peptide selectively directs the progenitor cell to the target tissue.

**Claim 26 (Previously Presented):** The composition of claim 1, wherein said targeting moiety comprises an antibody selected from antibodies to collagens I, II, V, VI and IX, chondroitin-4-sulfate, dermatan sulfate, and chondroitin-6-sulfate.

**Claims 27-28 (Cancelled)**

**Claim 29 (Previously Presented):** The composition of claim 26, wherein said antibody is selected from a monoclonal antibody, a polyclonal antibody, and a humanized antibody.

**Claims 30-31 (Cancelled)**

**Claim 32 (Withdrawn):** The composition of claim 1, wherein said targeting moiety is a fusion protein.

**Claim 33 (Withdrawn):** The composition of claim 32, wherein said fusion protein comprises an Fc fragment.

**Claim 34 (Withdrawn):** The composition of claim 32, wherein said fusion protein comprises a homing peptide.

**Claim 35 (Withdrawn):** The composition of claim 1, wherein said targeting moiety comprises a receptor or ligand.

**Claim 36 (Withdrawn):** The composition of claim 35, wherein said receptor is a chemokine receptor.

**Claim 37 (Withdrawn):** The composition of claim 1, wherein said targeting moiety comprises an aptamer.

**Claim 38 (Withdrawn):** The composition of claim 1, wherein said targeting moiety is a peptidomimetic.

**Claim 39 (Previously Presented):** The composition of claim 1, wherein the target tissue is selected from cartilage, skeletal muscle, smooth muscle, bone,

tendon, ligament, adipose tissue, skin, neuronal tissue, connective tissue, hepatic tissue, pancreatic tissue, kidney tissue, bone marrow tissue, cardiac tissue, retinal tissue, intestinal tissue, lung tissue, and endothelium tissue.

**Claim 40 (Cancelled)**

**Claim 41 (Previously Presented):** The composition of claim 1, said composition further comprising a bioactive factor selected from a transforming growth factor, a bone morphogenic protein, a cartilage-derived morphogenic protein, a growth differentiation factor, an angiogenic factor, a platelet-derived growth factor, a vascular endothelial growth factor, an epidermal growth factor, a fibroblast growth factor, a hepatocyte growth factor, an insulin-like growth factor, a nerve growth factor, a colony-stimulating factor, a neurotrophin, a growth hormone, an interleukin, a connective tissue growth factor, a parathyroid hormone-related protein, a chemokine, a Wnt protein, a Noggin, and a Gremlin.

**Claims 42-44 (Cancelled)**

**Claim 45 (Previously Presented):** The method of claim 190, wherein the progenitor cell is selected from the group consisting of a totipotent stem cell, pluripotent stem cell, multipotent stem cell, mesenchymal stem cell, neuronal stem cell, hematopoietic stem cell, pancreatic stem cell, cardiac stem cell, embryonic stem cell, embryonic germ cell, neural crest stem cell, kidney stem cell, hepatic stem cell, lung stem cell, hemangioblast cell, and endothelial progenitor cell.

**Claim 46 (Withdrawn):** The method of claim 190, wherein the progenitor cell is derived from a de-differentiated chondrogenic cell, myogenic cell, osteogenic cell, tendogenic cell, ligamentogenic cell, adipogenic cell, and dermatogenic cell.

**Claim 47 (Previously Presented):** The method of claim 190, wherein the linker is selected from protein G and protein A.

**Claim 48 (Previously Presented):** The method of claim 190, wherein the linker is modified with a lipophilic moiety selected from a palmitoyl moiety, myristoyl moiety, margaroyl moiety, stearoyl moiety, arachidoyl moiety, acetyl moiety, butyryl moiety, hexanoyl moiety, octanoyl moiety, decanoyl moiety, lauroyl moiety, palmitoleoyl moiety, behenoyl moiety, and lignoceroyl moiety.

**Claim 49 (Cancelled)**

**Claim 50 (Currently Amended):** The method of claim ~~191~~ 190, wherein the targeting moiety is modified with a lipophilic moiety selected from a palmitoyl moiety, myristoyl moiety, margaroyl moiety, stearoyl moiety, arachidoyl moiety, acetyl moiety, butyryl moiety, hexanoyl moiety, octanoyl moiety, decanoyl moiety, lauroyl moiety, palmitoleoyl moiety, behenoyl moiety, and lignoceroyl moiety.

**Claim 51 (Cancelled)**



**Claim 52 (Previously Presented):** The method of claim 190, wherein the progenitor cell expresses a cell surface marker or an extracellular matrix molecule selected from the group consisting of CD4, CD8, CD10, CD30, CD33, CD34, CD38, CD45, CD133, CD146, fetal liver kinase-1 (Flk1), C-kit, Lin, Mac-1, Sca-1, Stro-1, Thy-1, Collagen types II or IV, O1, O4, N-CAM, p75, and SSEA.

**Claim 53 (Cancelled)**

**Claim 54 (Previously Presented):** The method of claim 190, wherein the targeting moiety comprises a component of a binding pair.

**Claim 55 (Previously Presented):** The method of claim 190, wherein the targeting moiety interacts with an epitope intrinsic to the target tissue.

**Claim 56 (Original):** The method of claim 55, wherein the epitope is a protein or carbohydrate epitope of the target tissue.

**Claim 57 (Withdrawn):** The method of claim 56, wherein the carbohydrate epitope is within a complex carbohydrate.

**Claim 58 (Withdrawn):** The method of claim 57, wherein the complex carbohydrate binds to a lectin.

**Claim 59 (Withdrawn):** The method of claim 57, wherein the complex carbohydrate is a proteoglycan selected from the group consisting of chondroitin sulfate, dermatan sulfate, heparin, heparin sulfate, hyaluronate, and keratin sulfate.

**Claim 60 (Cancelled)**

**Claim 61 (Withdrawn):** The method of claim 190, wherein the targeting moiety comprises a homing peptide.

**Claim 62 (Withdrawn):** The method of claim 61, wherein the homing peptide comprises a sequence selected from PWERSL, FMLRDR, and SGLRQR, and targets to bone marrow tissues.

**Claim 63 (Withdrawn):** The method of claim 61, wherein the homing peptide comprises a sequence of ASSLNIA, and targets to muscle tissues.

**Claim 64 (Withdrawn):** The method of claim 61, wherein the homing peptide comprises a sequence of YSGKWGW, and targets to the intestine.

**Claim 65 (Withdrawn):** The method of claim 61, wherein the homing peptide comprises a sequence selected from CGFELETC and CGFECVRQCPERC, and targets to lung tissues.

**Claim 66 (Withdrawn):** The method of claim 61, wherein the homing peptide selectively directs the progenitor cell to the target tissue.

**Claim 67 (Withdrawn):** The method of claim 190, wherein the targeting moiety comprises an antibody selected from antibodies to collagens I, II, V, VI and IX, chondroitin-4-sulfate, dermatan sulfate, and chondroitin-6-sulfate.

**Claims 68-69 (Cancelled)**

**Claim 70 (Previously Presented):** The method of claim 67, wherein the antibody is selected from a monoclonal antibody, a polyclonal antibody, and a humanized antibody.

**Claims 71-72 (Cancelled)**

**Claim 73 (Withdrawn):** The method of claim 190, wherein the targeting moiety is a fusion protein.

**Claim 74 (Withdrawn):** The method of claim 73, wherein the fusion protein comprises an Fc fragment.

**Claim 75 (Withdrawn):** The method of claim 73, wherein the fusion protein comprises a homing peptide.

**Claim 76 (Withdrawn):** The method of claim 190, wherein the targeting moiety comprises a receptor or ligand.

**Claim 77 (Withdrawn):** The method of claim 76, wherein the receptor is a chemokine receptor.

**Claim 78 (Withdrawn):** The method of claim 190, wherein the targeting moiety comprises an aptamer.

**Claim 79 (Withdrawn):** The method of claim 190, wherein the targeting moiety is a peptidomimetic.

**Claim 80 (Previously Presented):** The method of claim 190, wherein the target tissue is selected from cartilage, skeletal muscle, smooth muscle, bone, tendon, ligament, adipose tissue, skin, neuronal tissue, connective tissue, hepatic tissue, pancreatic tissue, kidney tissue, bone marrow tissue, cardiac tissue, retinal tissue, intestinal tissue, lung tissue, and endothelium tissue.

**Claim 81 (Cancelled)**

**Claim 82 (Previously Presented):** The method of claim 190, wherein the progenitor cell is treated with a bioactive factor selected from a transforming growth factor, a bone morphogenic protein, a cartilage-derived morphogenic protein, a

growth differentiation factor, an angiogenic factor, a platelet-derived growth factor, a vascular endothelial growth factor, an epidermal growth factor, a fibroblast growth factor, a hepatocyte growth factor, an insulin-like growth factor, a nerve growth factor, a colony-stimulating factor, a neurotrophin, a growth hormone, an interleukin, a connective tissue growth factor, a parathyroid hormone-related protein, a chemokine, a Wnt protein, a Noggin, and a Gremlin.

**Claim 83 (Cancelled)**

**Claim 84 (Withdrawn):** The method of claim 190, wherein the progenitor cell complexed with the targeting moiety is delivered to the subject by injection into blood.

**Claim 85 (Previously Presented):** The method of claim 190, wherein the progenitor cell complexed with the targeting moiety is delivered to the subject by injection into the target tissue.

**Claim 86 (Withdrawn):** The method of claim 190, wherein the progenitor cell complexed with the targeting moiety is delivered to the subject by surgical implantation.

**Claim 87 (Withdrawn):** The method of claim 190, wherein the progenitor cell complexed with the targeting moiety is delivered to the subject by subcutaneous injection.

**Claim 88 (Withdrawn):** The method of claim 190, wherein the progenitor cell complexed with the targeting moiety is delivered to the subject by intra-peritoneal injection.

**Claim 89 (Withdrawn):** The method of claim 190, wherein the progenitor cell complexed with the targeting moiety is delivered to the subject by intra-synovial injection.

**Claims 90-95 (Cancelled)**

**Claim 96 (Previously Presented):** A tissue engineering composition, comprising:

- a progenitor cell;
- a targeting moiety that binds to a target tissue; and
- a biocompatible scaffold,

wherein the tissue engineering composition generates a scaffold graft to be delivered to a target tissue.

**Claim 97 (Withdrawn):** The composition of claim 96, wherein said scaffold comprises a bioresorbable material having at least one molecule selected from a hydroxy acid, a glycolic acid, caprolactone, hydroxybutyrate, dioxanone, an orthoester, an orthocarbonate, an aminocarbonate, collagen, cellulose, fibrin, hyaluronic acid, fibronectin, and chitosan.

**Claim 98 (Cancelled)**

**Claim 99 (Withdrawn):** The composition of claim 96, wherein said scaffold comprises a non-bioresorbable material having at least one molecule selected from a polyalkylene terephthalate, a polyamide, a polyalkene, poly(vinyl fluoride), polytetrafluoroethylene carbon fibers, natural or synthetic silk, carbon fiber, and glass.

**Claim 100 (Cancelled)**

**Claim 101 (Withdrawn):** The composition of claim 96, further comprising a bioactive factor selected from a transforming growth factor, a bone morphogenic protein, a cartilage-derived morphogenic protein, a growth differentiation factor, an angiogenic factor, a platelet-derived growth factor, a vascular endothelial growth factor, an epidermal growth factor, a fibroblast growth factor, a hepatocyte growth factor, an insulin-like growth factor, a nerve growth factor, a colony-stimulating factor, a neurotrophin, a growth hormone, an interleukin, a connective tissue growth factor, a

parathyroid hormone-related protein, a chemokine, a Wnt protein, a Noggin, and a Gremlin.

**Claim 102 (Cancelled)**

**Claim 103 (Withdrawn):** The composition of claim 96, wherein said progenitor cell is selected from the group consisting of a totipotent stem cell, pluripotent stem cell, multipotent stem cell, mesenchymal stem cell, neuronal stem cell, hematopoietic stem cell, pancreatic stem cell, cardiac stem cell, embryonic stem cell, embryonic germ cell, neural crest stem cell, kidney stem cell, hepatic stem cell, lung stem cell, hemangioblast cell, and endothelial progenitor cell.

**Claim 104 (Withdrawn):** The composition of claim 96, wherein said progenitor cell is derived from a de-differentiated chondrogenic cell, myogenic cell, osteogenic cell, tendogenic cell, ligamentogenic cell, adipogenic cell, and dermatogenic cell.

**Claim 105 (Withdrawn):** The composition of claim 96, wherein said progenitor cell is pre-coated with a linker selected from protein G and protein A.

**Claim 106 (Cancelled)**



**Claim 107 (Withdrawn):** The composition of claim 105, wherein said linker is modified with a lipophilic moiety selected from a palmitoyl moiety, myristoyl moiety, margaroyl moiety, stearoyl moiety, arachidoyl moiety, acetyl moiety, butyryl moiety, hexanoyl moiety, octanoyl moiety, decanoyl moiety, lauroyl moiety, palmitoleoyl moiety, behenoyl moiety, and lignoceroyl moiety.

**Claim 108 (Cancelled)**

**Claim 109 (Withdrawn):** The composition of claim 96, wherein said progenitor cell is directly linked to said targeting moiety.

**Claim 110 (Withdrawn):** The composition of claim 109, wherein said targeting moiety is modified with a lipophilic moiety selected from a palmitoyl moiety, myristoyl moiety, margaroyl moiety, stearoyl moiety, arachidoyl moiety, acetyl moiety, butyryl moiety, hexanoyl moiety, octanoyl moiety, decanoyl moiety, lauroyl moiety, palmitoleoyl moiety, behenoyl moiety, and lignoceroyl moiety.

**Claim 111 (Cancelled)**

**Claim 112 (Withdrawn):** The composition of claim 96, wherein said progenitor cell expresses a cell surface marker or an extracellular matrix molecule selected from the group consisting of CD4, CD8, CD10, CD30, CD33, CD34, CD38,

CD45, CD133, CD146, fetal liver kinase-1 (Flk1), C-kit, Lin, Mac-1, Sca-1, Stro-1, Thy-1, Collagen types II or IV, O1, O4, N-CAM, p75, and SSEA.

**Claim 113 (Cancelled)**

**Claim 114 (Withdrawn):** The composition of claim 96, wherein said targeting moiety comprises a component of a specific binding pair.

**Claim 115 (Withdrawn):** The composition of claim 96, wherein said targeting moiety interacts with an epitope intrinsic to the target tissue.

**Claim 116 (Withdrawn):** The composition of claim 115, wherein said epitope is a protein or carbohydrate epitope of the target tissue.

**Claim 117 (Withdrawn):** The composition of claim 116, wherein said carbohydrate epitope is within a complex carbohydrate.

**Claim 118 (Withdrawn):** The composition of claim 117, wherein said complex carbohydrate binds to a lectin.

**Claim 119 (Withdrawn):** The composition of claim 117, wherein said complex carbohydrate is a proteoglycan selected from the group consisting of

chondroitin sulfate, dermatan sulfate, heparin, heparan sulfate, hyaluronate, and keratan sulfate.

**Claim 120 (Cancelled)**

**Claim 121 (Withdrawn):** The composition of claim 96, wherein said targeting moiety comprises a homing peptide.

**Claim 122 (Withdrawn):** The composition of claim 121, wherein said homing peptide comprises a sequence selected from PWERSL, FMLRDR, and SGLRQR, and targets to bone marrow tissues.

**Claim 123 (Withdrawn):** The composition of claim 122, wherein said homing peptide comprises a sequence of ASSLNIA, and targets to muscle tissues.

**Claim 124 (Withdrawn):** The composition of claim 121, wherein said homing peptide comprises a sequence of YSGKWGW, and targets to the intestine.

**Claim 125 (Withdrawn):** The composition of claim 121, wherein said homing peptide comprises a sequence selected from CGFELETC and CGFECVRQCPCRC, and targets to lung tissues.

**Claim 126 (Withdrawn):** The composition of claim 121, wherein said homing peptide selectively directs the progenitor cell to the target tissue.

**Claim 127 (Withdrawn):** The composition of claim 96, wherein said targeting moiety comprises an antibody selected from antibodies to collagens I, II, V, VI and IX, chondroitin-4-sulfate, dermatan sulfate, and chondroitin-6-sulfate.

**Claims 128-129 (Cancelled)**

**Claim 130 (Withdrawn):** The composition of claim 127, wherein said antibody is selected from a monoclonal antibody, a polyclonal antibody, and a humanized antibody.

**Claims 131-132 (Cancelled)**

**Claim 133 (Withdrawn):** The composition of claim 96, wherein said targeting moiety is a fusion protein.

**Claim 134 (Withdrawn):** The composition of claim 133, wherein said fusion protein comprises an Fc fragment.

**Claim 135 (Withdrawn):** The composition of claim 133, wherein said fusion protein comprises a homing peptide.

**Claim 136 (Withdrawn):** The composition of claim 96, wherein said targeting moiety comprises a receptor or ligand.

**Claim 137 (Withdrawn):** The composition of claim 136, wherein said receptor is a chemokine receptor.

**Claim 138 (Withdrawn):** The composition of claim 96 wherein said targeting moiety comprises an aptamer.

**Claim 139 (Withdrawn):** The composition of claim 96, wherein said targeting moiety is a peptidomimetic.

**Claim 140 (Withdrawn):** The composition of claim 96, wherein the target tissue is selected from cartilage, skeletal muscle, smooth muscle, bone, tendon, ligament, adipose tissue, skin, neuronal tissue, connective tissue, hepatic tissue, pancreatic tissue, kidney tissue, bone marrow tissue, cardiac tissue, retinal tissue, intestinal tissue, lung tissue, and endothelium tissue.

**Claim 141 (Cancelled)**

**Claim 142 (Withdrawn):** A method of delivering a scaffold graft in target tissue, comprising:

linking a progenitor cell to a targeting moiety that binds to a target tissue;

seeding the progenitor cell (a) onto a biocompatible scaffold, thereby forming a scaffold graft; and

implanting the scaffold (b) in direct contact with, or adjacent to, a target tissue for a sufficient time,

wherein cells of the target tissue associate with the implanted scaffold graft, thereby to form new tissue.

**Claim 143 (Withdrawn):** The method of claim 142, wherein the scaffold comprises a bioresorbable material having at least one molecule selected from a hydroxy acid, a glycolic acid, caprolactone, hydroxybutyrate, dioxanone, an orthoester, an orthocarbonate, an aminocarbonate, collagen, cellulose, fibrin, hyaluronic acid, fibronectin, and chitosan.

**Claim 144 (Cancelled)**

**Claim 145 (Withdrawn):** The method of claim 142, wherein the scaffold comprises a non-bioresorbable material having at least one molecule selected from a polyalkylene terephthalate, a polyamide, a polyalkene, poly(vinyl fluoride), polytetrafluoroethylene carbon fibers, natural or synthetic silk, carbon fiber, and glass.

**Claim 146 (Cancelled)**

**Claim 147 (Withdrawn):** The method of claim 142, wherein the progenitor cell is selected from the group consisting of a totipotent stem cell, pluripotent stem cell, multipotent stem cell, mesenchymal stem cell, neuronal stem cell, hematopoietic stem cell, pancreatic stem cell, cardiac stem cell, embryonic stem cell, embryonic germ cell, neural crest stem cell, kidney stem cell, hepatic stem cell, lung stem cell, hemangioblast cell, and endothelial progenitor cell.

**Claim 148 (Withdrawn):** The method of claim 142, wherein the progenitor cell is derived from a de-differentiated chondrogenic cell, myogenic cell, osteogenic cell, tendogenic cell, ligamentogenic cell, adipogenic cell, and dermatogenic cell.

**Claim 149 (Withdrawn):** The method of claim 142, wherein the progenitor cell is pre-coated with a linker selected from protein G and protein A.

**Claim 150 (Cancelled)**

**Claim 151 (Withdrawn):** The method of claim 149, wherein the linker is modified with a lipophilic moiety selected from a palmitoyl moiety, myristoyl moiety, margaroyl moiety, stearoyl moiety, arachidoyl moiety, acetyl moiety, butyryl moiety, hexanoyl moiety, octanoyl moiety, decanoyl moiety, lauroyl moiety, palmitoleoyl moiety, behenoyl moiety, and lignoceroyl moiety.

**Claim 152 (Cancelled)**

**Claim 153 (Withdrawn):** The method of claim 142, wherein the progenitor cell is directly linked to said targeting moiety.

**Claim 154 (Withdrawn):** The method of claim 153, wherein the targeting moiety is modified with a lipophilic moiety selected from a palmitoyl moiety, myristoyl moiety, margaroyl moiety, stearoyl moiety, arachidoyl moiety, acetyl moiety, butyryl moiety, hexanoyl moiety, octanoyl moiety, decanoyl moiety, lauroyl moiety, palmitoleoyl moiety, behenoyl moiety, and lignoceroyl moiety.

**Claim 155 (Cancelled)**

**Claim 156 (Withdrawn):** The method of claim 142, wherein the progenitor cell expresses a cell surface marker or an extracellular matrix molecule selected from the group consisting of CD4, CD8, CD10, CD30, CD33, CD34, CD38, CD45, CD133, CD146, fetal liver kinase-1 (Flk1), C-kit, Lin, Mac-1, Sca-1, Stro-1, Thy-1, Collagen types II or IV, O1, O4, N-CAM, p75, and SSEA.

**Claim 157 (Cancelled)**

**Claim 158 (Withdrawn):** The method of claim 142, wherein the targeting moiety comprises a component of a specific binding pair.



**Claim 159 (Withdrawn):** The method of claim 142, wherein the targeting moiety interacts with an epitope intrinsic to the target tissue.

**Claim 160 (Withdrawn):** The method of claim 159, wherein the epitope is a protein or carbohydrate epitope of the target tissue.

**Claim 161 (Withdrawn):** The method of claim 160, wherein the carbohydrate epitope is within a complex carbohydrate.

**Claim 162 (Withdrawn):** The method of claim 161, wherein the complex carbohydrate binds to a lectin.

**Claim 163 (Withdrawn):** The method of claim 161, wherein the complex carbohydrate is a proteoglycan selected from the group consisting of chondroitin sulfate, dermatan sulfate, heparin, heparan sulfate, hyaluronate, and keratan sulfate.

**Claim 164 (Cancelled)**

**Claim 165 (Withdrawn):** The method of claim 142, wherein the targeting moiety comprises a homing peptide.

**Claim 166 (Withdrawn):** The method of claim 165, wherein the homing peptide comprises a sequence selected from PWERSL, FMLRDR, and SGLRQR, and targets to bone marrow tissues.

**Claim 167 (Withdrawn):** The method of claim 165, wherein the homing peptide comprises a sequence of ASSLNIA, and targets to muscle tissues.

**Claim 168 (Withdrawn):** The method of claim 165, wherein the homing peptide comprises a sequence of YSGKWGW, and targets to the intestine.

**Claim 169 (Withdrawn):** The method of claim 165, wherein the homing peptide comprises a sequence selected from CGFELETC and CGFECVRQCPCRC, and targets to lung tissues.

**Claim 170 (Withdrawn):** The method of claim 165, wherein the homing peptide selectively directs the progenitor cell to the target tissue.

**Claim 171 (Withdrawn):** The method of claim 142, wherein the targeting moiety comprises an antibody selected from antibodies to collagens I, II, V, VI and IX, chondroitin-4-sulfate, dermatan sulfate, and chondroitin-6-sulfate.

**Claims 172-173 (Cancelled)**

**Claim 174 (Previously Presented):** The method of claim 171, wherein the antibody is selected from a monoclonal antibody, a polyclonal antibody, and a humanized antibody.

**Claims 175-176 (Cancelled)**

**Claim 177 (Withdrawn):** The method of claim 142, wherein the targeting moiety is a fusion protein.

**Claim 178 (Withdrawn):** The method of claim 177, wherein the fusion protein comprises an Fc fragment.

**Claim 179 (Withdrawn):** The method of claim 177, wherein the fusion protein comprises a homing peptide.

**Claim 180 (Withdrawn):** The method of claim 142, wherein the targeting moiety comprises a receptor or ligand.

**Claim 181 (Withdrawn):** The method of claim 180, wherein the receptor is a chemokine receptor.

**Claim 182 (Withdrawn):** The method of claim 142, wherein the targeting moiety comprises an aptamer.

**Claim 183 (Withdrawn):** The method of claim 142, wherein the targeting moiety is a peptidomimetic.

**Claim 184 (Withdrawn):** The method of claim 142, wherein the target tissue is selected from cartilage, skeletal muscle, smooth muscle, bone, tendon, ligament, adipose tissue, skin, neuronal tissue, connective tissue, hepatic tissue, pancreatic tissue, kidney tissue, bone marrow tissue, cardiac tissue, retinal tissue, intestinal tissue, lung tissue, and endothelium tissue.

**Claim 185 (Cancelled)**

**Claim 186 (Withdrawn):** The method of claim 142, wherein the scaffold graft comprises a bioactive factor selected from a transforming growth factor, a bone morphogenic protein, a cartilage-derived morphogenic protein, a growth differentiation factor, an angiogenic factor, a platelet-derived growth factor, a vascular endothelial growth factor, an epidermal growth factor, a fibroblast growth factor, a hepatocyte growth factor, an insulin-like growth factor, a nerve growth factor, a colony-stimulating factor, a neurotrophin, a growth hormone, an interleukin, a connective tissue growth factor, a parathyroid hormone-related protein, a chemokine, a Wnt protein, a Noggin, and a Gremlin.

**Claim 187 (Cancelled)**

**Claim 188 (Withdrawn):** The method of claim 142, wherein the scaffold graft is delivered to the target tissue by surgical implantation.

**Claim 189 (Withdrawn):** The method of claim 142, further comprising removing the scaffold graft from the subject.

**Claim 190 (Currently Amended):** A method of delivering a progenitor cell to a target tissue in a subject, comprising:

coating the progenitor cell with a targeting moiety that binds to a target tissue and the progenitor cell, wherein the targeting moiety is modified with a lipophilic moiety or the progenitor cell is pre-coated with a linker; and

administering the progenitor cell complexed with the targeting moiety to a subject,

wherein said targeting moiety selectively directs the progenitor cell to the target tissue, and wherein the targeting moiety enhances adherence of the progenitor cell to the target tissue when administered to a target tissue injury site.

**Claim 191 (Currently Amended):** The method of claim 190, wherein said step of coating the progenitor cell with the linker further comprises the ~~steps~~ step of:

~~coating the progenitor cell with a linker; and~~

contacting the coated progenitor cell with the targeting moiety so the targeting moiety binds to the linker and can then bind to the target tissue.